Survey of Fisheries Scientists and Managers Working in the Southeast Atlantic

Results and Recommendations 11-19-24

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Can data to inform fisheries management be gathered through citizen science?

Starting assumptions:

- Fishermen are knowledgeable observers
- Fishermen are eager to participate
- Fishermen have many eyes on the water
- Builds on cooperative research

But it’s not just fishermen:

- Scientists
- Managers

Are these folks eager to participate? Or at least willing?

- Find out through research and evaluation!

For all three legs of the stool:

- Scientists
- Managers
- Fishermen

Gather information on knowledge of, beliefs about, and attitudes toward …

- Fisheries data
- Fisheries management
- Citizen Science

To assist with …

- Evaluation
- Program Development

Survey to gather data about scientists and managers

- Many individuals contributed to development
- Qualtrics platform
- Recruited participants by email
- IRB approval from Cornell

Audience

- Florida Fish and Wildlife Commission
- Georgia Department of Natural Resources
- South Carolina Department of Natural Resources
- North Carolina Division of Marine Fisheries
- NOAA Southeast Regional Office
- NOAA Southeast Fisheries Science Center
- List of academics provided by Committee members

Deployment

- 150 names
- Initial email and three follow ups
- 48-53% response rate

Respondents

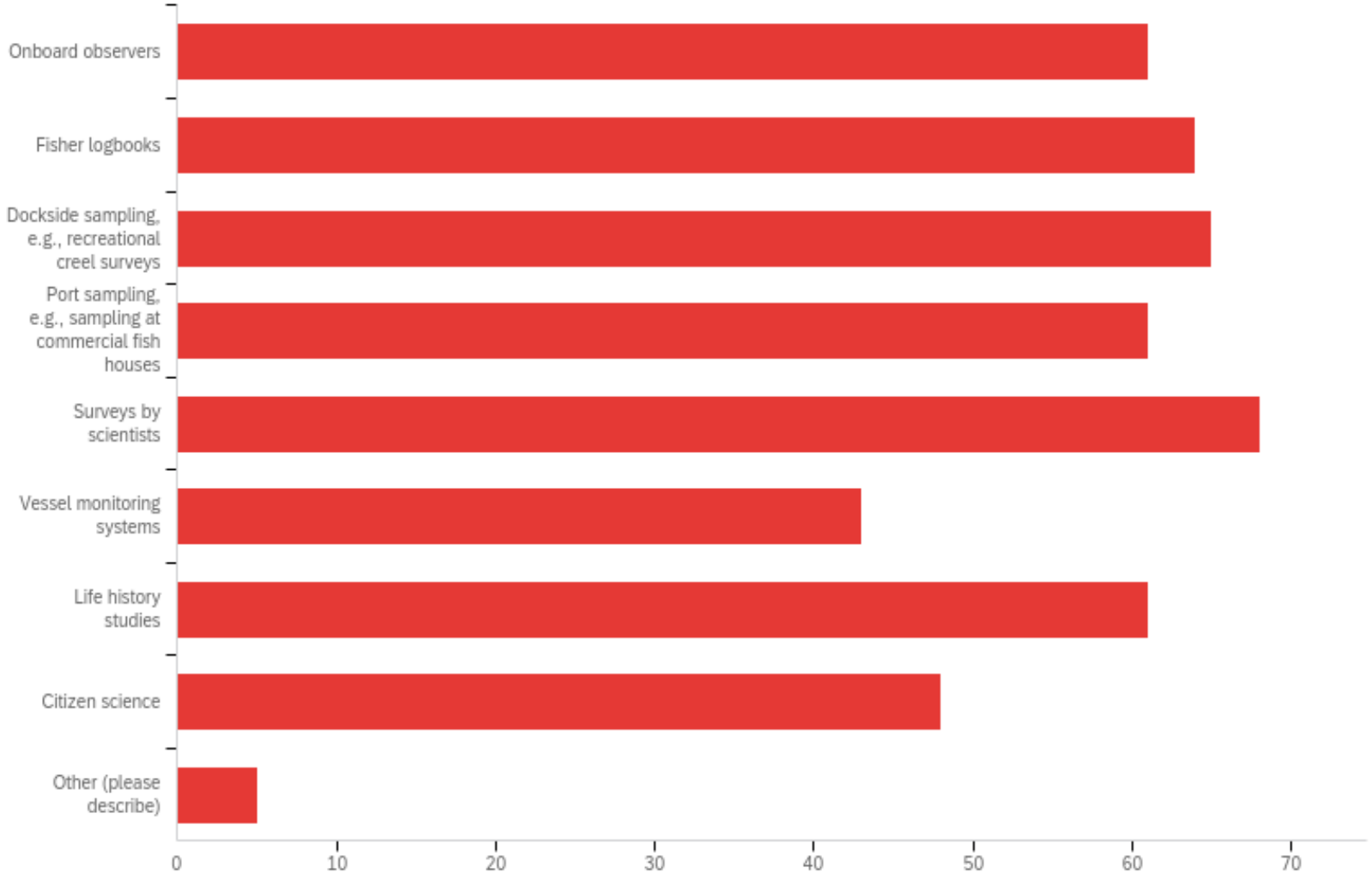
- About 2/3 scientists
- Equally distributed across states
- About 40% federal, 40% state, and 20% academic
- Nearly half had worked in field for at least 21 years

Respondents

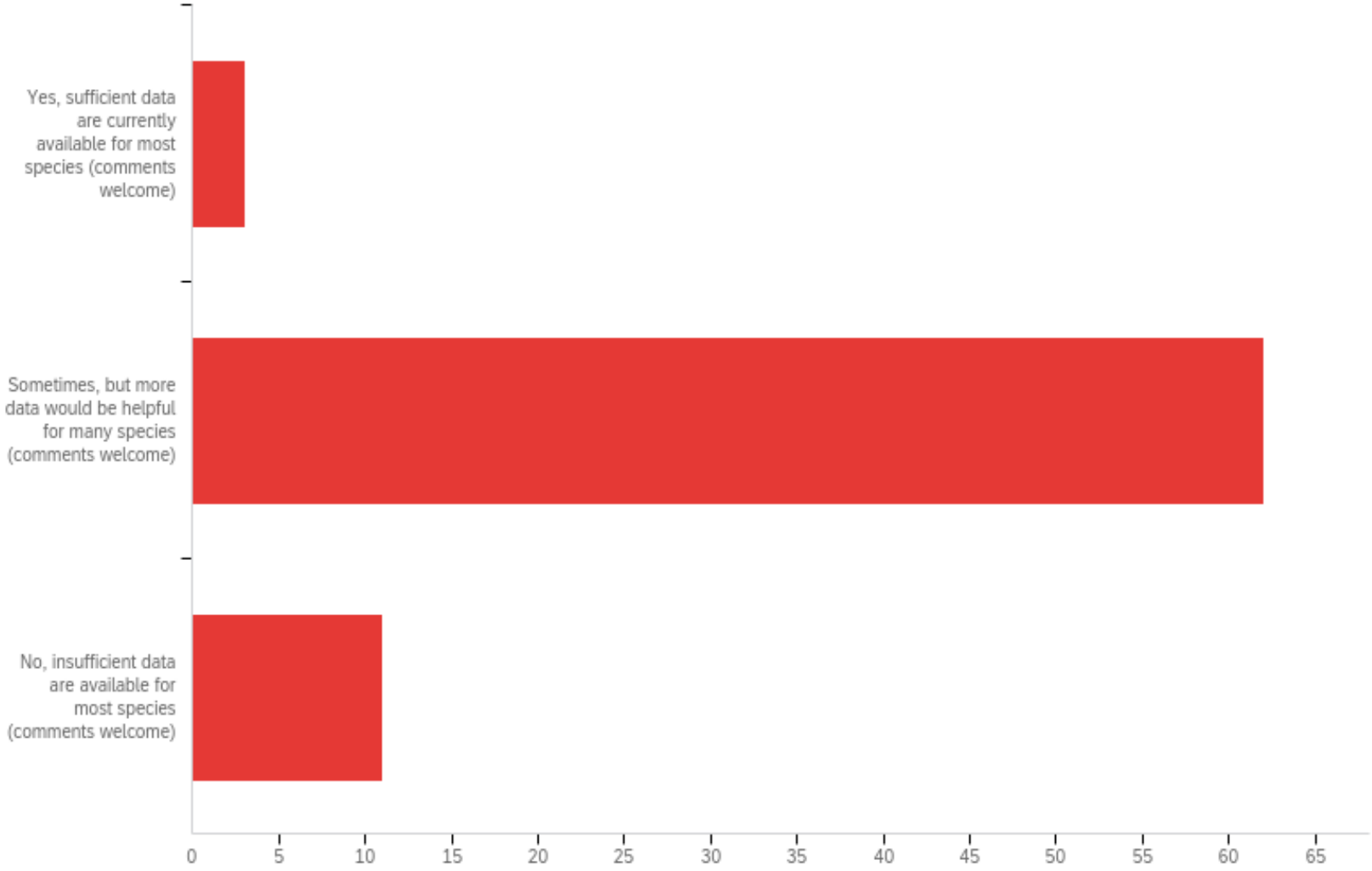
- Nearly all have been involved with SAFMC in some way
- More than half participated in an advisory panel or committee or have been involved with SEDAR

Fisheries data and management

Q12 - To make recommendations for managing fisheries, SAFMC requires reliable data about fish life histories, fishing effort, fish harvest, abundance information, and fisheries socioeconomics. Please indicate the sources of fisheries data used by the SAFMC with which you are familiar (check all that apply).



Q13 - Do you feel that the above sources of data, taken together, currently provide sufficient information on which to base management recommendations?

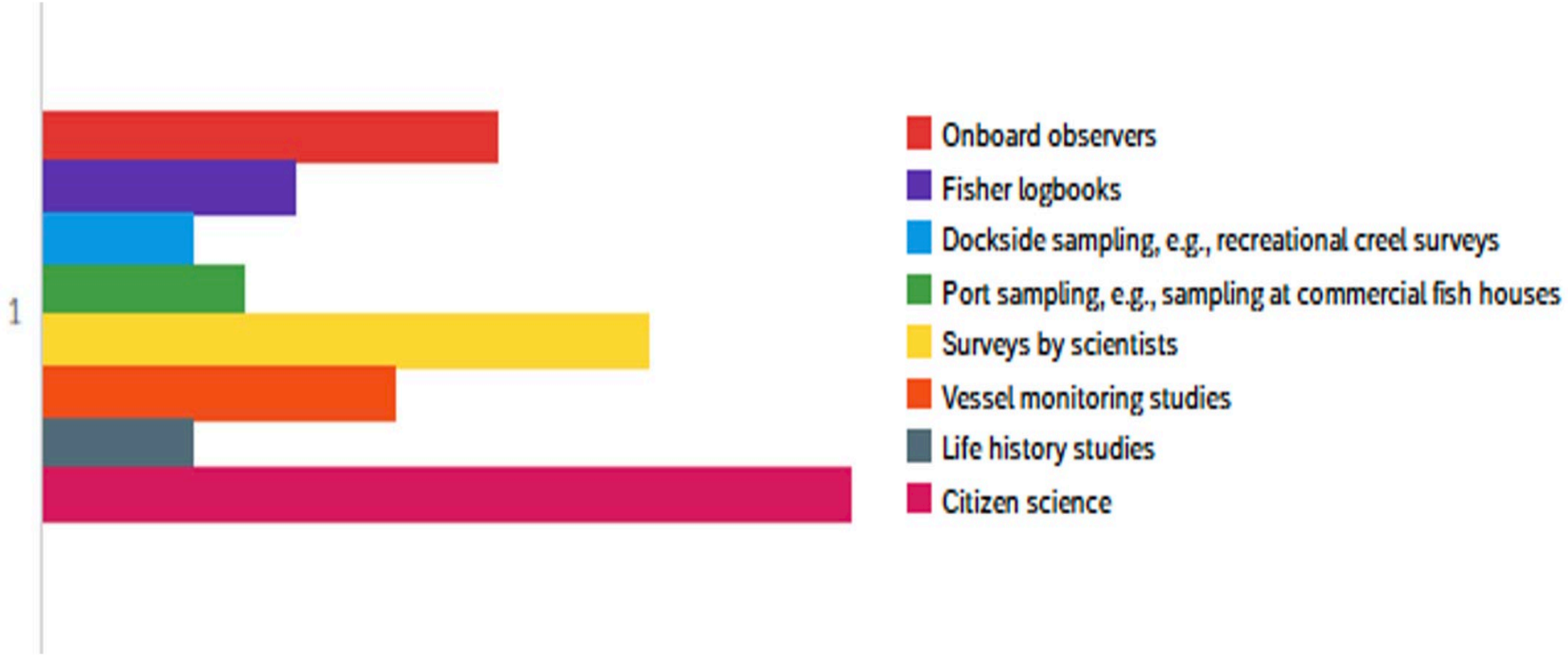


Q13 - Do you feel that the above sources of data, taken together, currently provide sufficient information on which to base management recommendations?

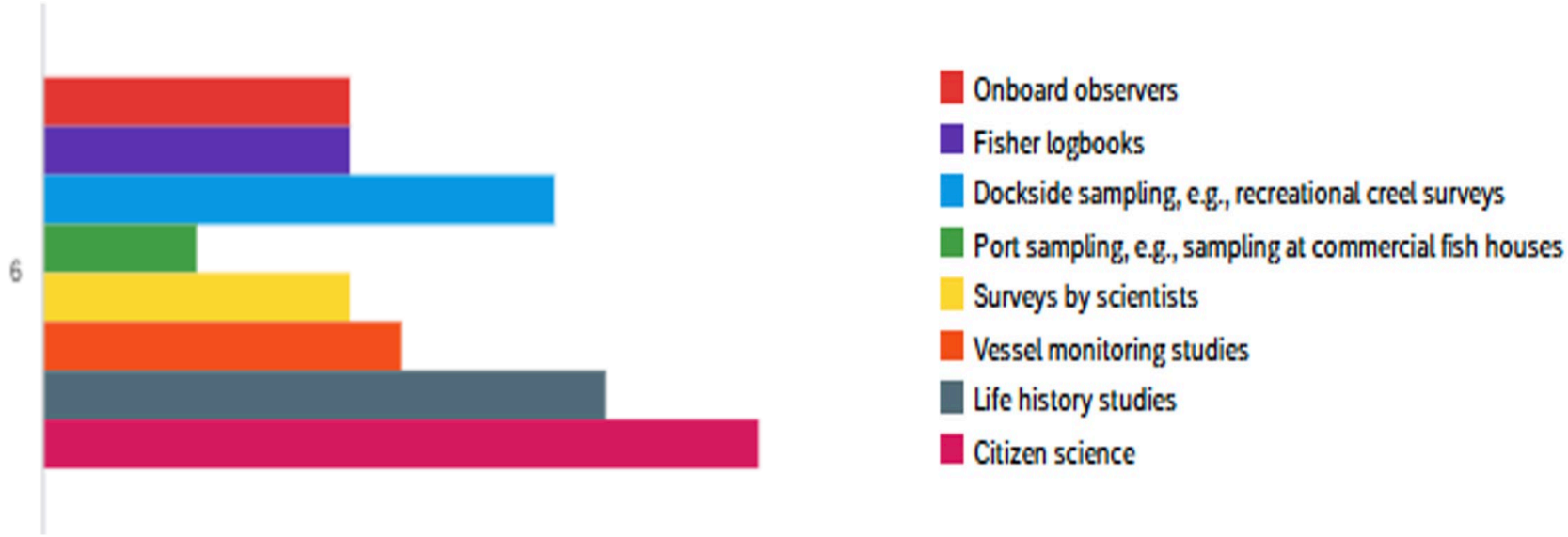
Q13_7_TEXT - No, insufficient data are available for most species)

We lack fishery-independent indices of abundance that inform us on overall population trends. We also lack an understanding of the total removals from the fisheries due to high uncertainty in recreational effort, landings and discards.
MRIP/FES remains a very poor tool for collection of recreational data, especially for rare event species.
There is not enough observer coverage in the South Atlantic Reef Fishery or the South Atlantic shrimp fishery as compared to the GOM and HMS fisheries.
Not enough quantitative social science being conducted to answer questions related to recreational anglers
While there is some data streams from all the above identified sources, most of it very limited in temporal and spatial converage resulting in a high degree of uncertainty.
Majority of species managed by SAFMC are considered "rare event" species and not encountered frequently enough in current surveys to produce precise catch estimates. Best available data is used far too often for data that is in actuality "only available data".
The above works well for commercial, but not recreational.

Q14 - Fishery scientists and managers wish that unlimited resources were available to collect data to inform fisheries management. Knowing that is not possible, how do you think that more data could best be acquired? Please rank these options in order of most (1) to least (8) effective considering cost and effort:



However, many respondents gave citizen science lower ratings. Here's the chart of data sources ranked 6, where citizen science (bottom bar) also is highest:



These results suggest that while many respondents thought that citizen science would be the most effective of these methods of gathering data, a large number did not.

	Mean	SD
Port sampling, e.g., sampling at commercial fish houses	4.32	1.87
Dockside sampling, e.g., recreational creel surveys `	4.33	1.81
Citizen science	**4.44**	**2.58**
Fisher logbooks	4.44	2.26
Surveys by scientists	4.54	2.48
Vessel monitoring studies	4.54	2.51
Onboard observers	4.77	2.43
Life history studies	4.86	2.05

Beliefs and trust

Q15 - Please rate your agreement with the following statements:

Respondents somewhat or strongly agreed with the following:

Fisheries managers use data to make management recommendations

Fishermen should have a voice in fishery management decisions

Fishermen have a responsibility to participate in fisheries management

Fisheries managers consider the needs of fishermen when making management recommendations

Q15 - Please rate your agreement with the following statements:

Respondents somewhat or strongly disagreed with the following:

Scientists trust managers to use data to make management recommendations

Fishing industry associations have the best interests of fishermen at heart

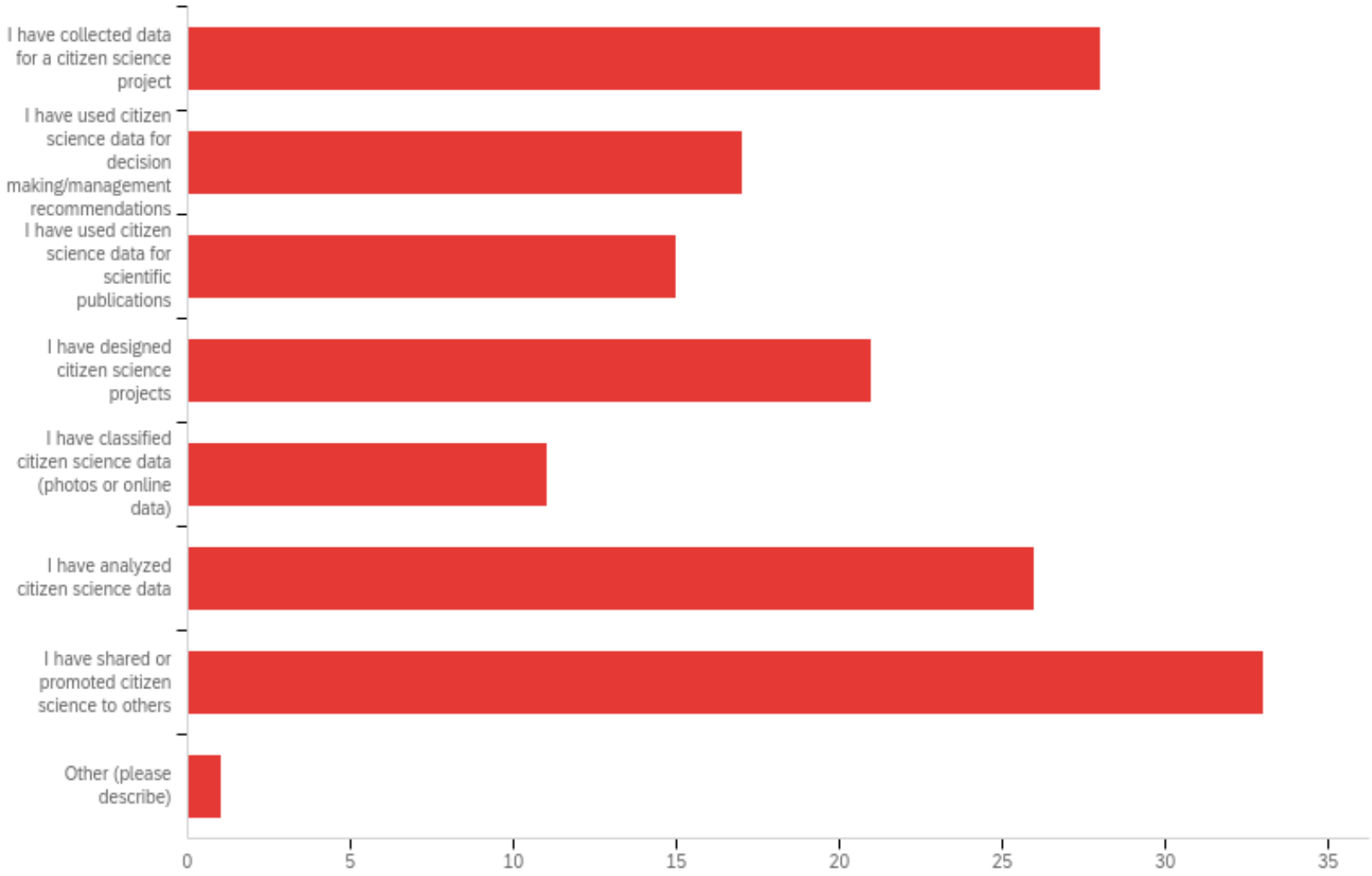
South Atlantic Fisheries are generally healthy

Fishermen trust scientists to collect data that are representative of their fisheries

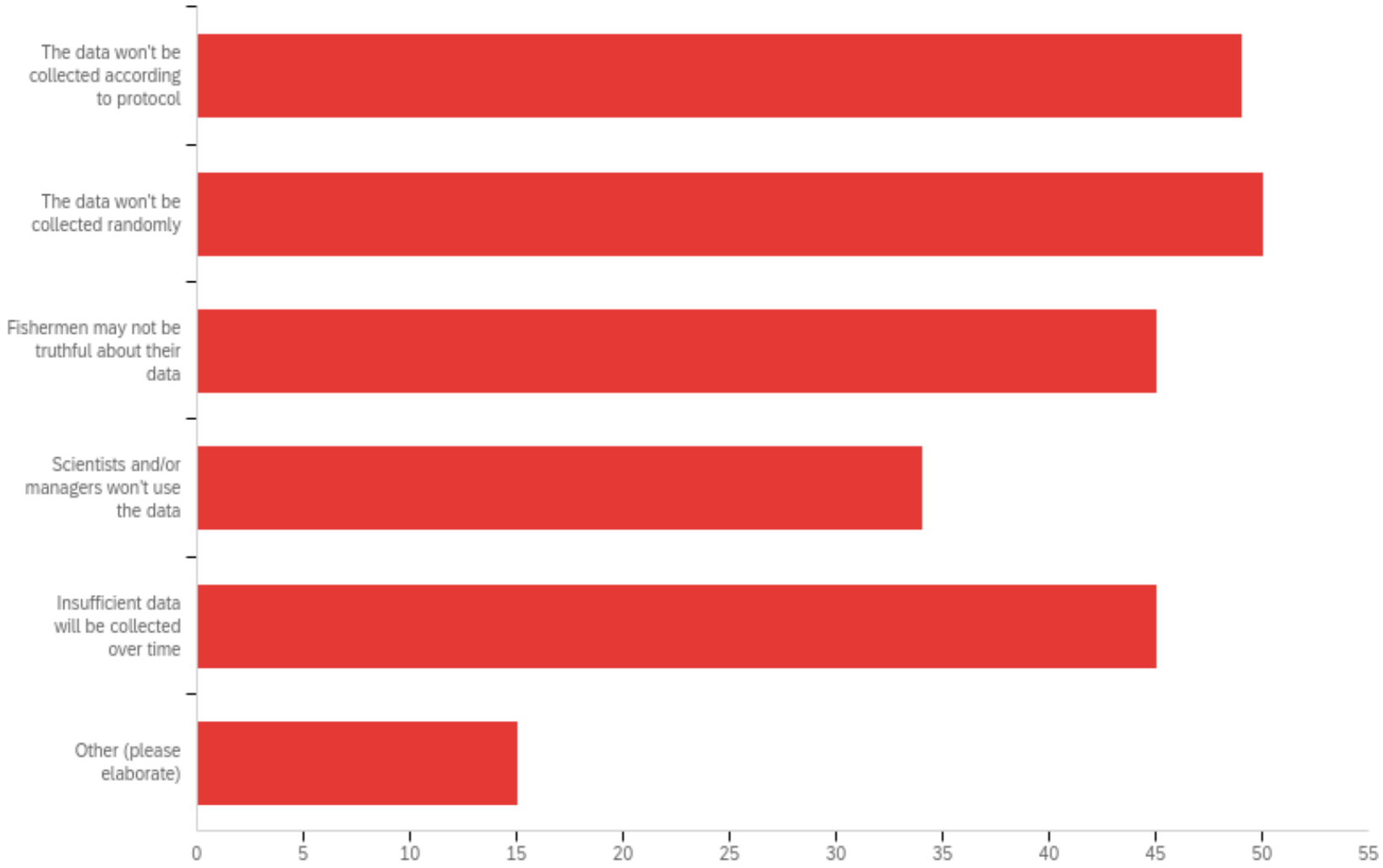
Citizen Science

- All respondents were somewhat to very familiar with citizen science
- Two-thirds of respondents had participated in citizen science or used citizen science data
- More than half of respondents felt that citizen science could be very to extremely useful in collecting data that can be used in fisheries management

Q19 - In what ways have you participated in citizen science? (Check all that apply.)



Q21 - What concerns do you have about citizen science? (Please check all that apply.)



Q21 - What concerns do you have about citizen science? (Please check all that apply.)

Q21_6_TEXT - Other (please elaborate)

Data will be misused or interpreted incorrectly.
Scientist won't use the data if it cannot be shown that the samples are representative.
Because it is not collected with a sampling design it can be difficult to analyze and use.
CI may lack statistical design requirements that will stand up to the scientific review process needed for stock assessments and management
perceptions replacing observations as data
The data collection may not be well-matched to the scientific gap or data need
The data will not be consistently provided
long-term data cannot be relied upon because people drop off involvement over time
Citizen science data will be over valued by certain groups who will insist that it should be weighted more heavily in management decisions than data collected by government surveys.

Q21 - What concerns do you have about citizen science? (Please check all that apply.)

Q21_6_TEXT - Other (please elaborate)

Bias in sampling due to selective reporting and non reporting biases
citizens will lose interest/trust in the project and participation will dwindle over time
Bias
Avidity bias. Only avid anglers will participate.
No QAQC
My concerns expressed above have to do with projects that are not designed by and/or closely monitored by scientists

Q22 - The SAFMC has created a list of topics for which citizen science data could be collected to inform fisheries management. Please rank the five topics that you think would provide the most useful data to the SAFMC Citizen Science Program in order of most useful (1) to least useful (5). (If you would like more information about any of these topics before ranking them, please click here.)

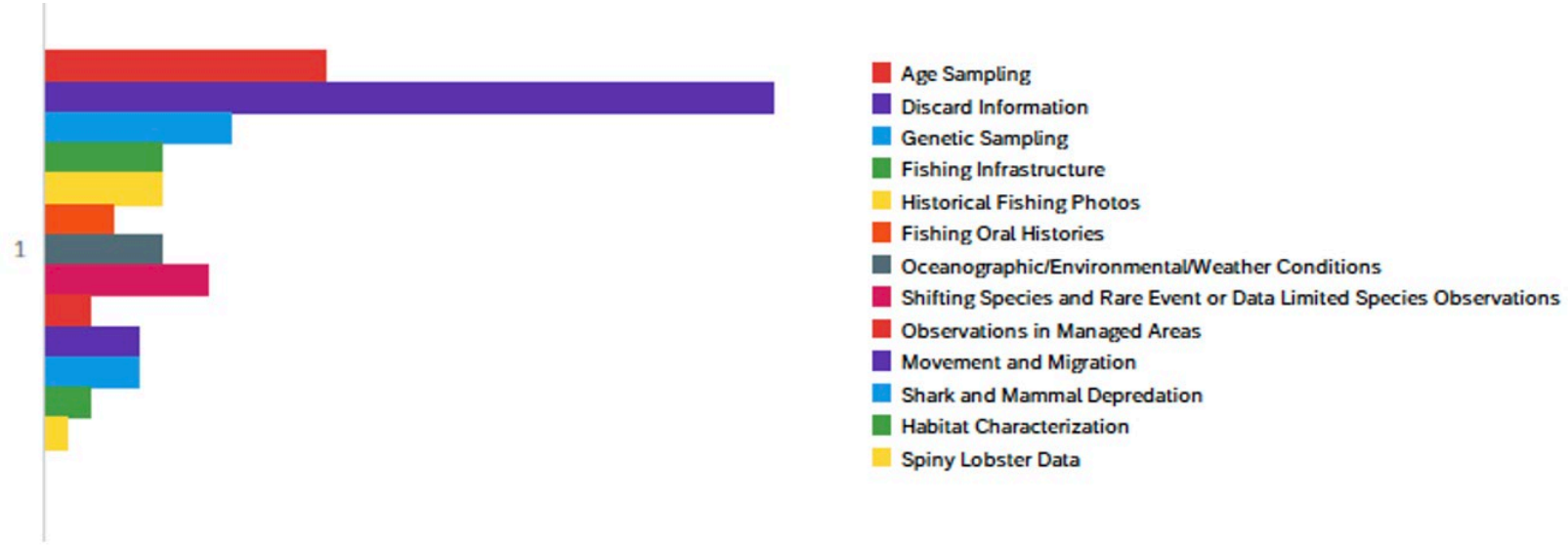


Table 3.

	Mean	SD
Discard information	2.18	1.49
Age sampling	2.63	1.41
Genetic sampling	2.85	1.65
Shark and mammal depredation	2.93	1.49
Shifting species/Rare event observations	3.20	1.51
Movement and migration	3.26	1.55
Oceanographic/Environmental weather conditions	3.42	1.35
Historical fishing photos	3.44	1.93
Fishing infrastructure	3.45	2.11
Observations in managed areas	3.71	2.45
Fishing oral histories	3.83	2.10
Habitat characterization	3.85	2.10
Spiny Lobster data	4.64	3.37

Q23 - If you would be willing to be contacted with any follow-up questions, please provide your name and email address here.

Conclusions/Recommendations

- Reached needed allies
- Need to take the attitudes and beliefs of this group very seriously
- Citizen science is generally supported by many/most respondents
- Many feel that citizen science is the most appropriate tool to use for gathering data on certain topics

Conclusions/Recommendations

- Many do have concerns that need to be understood and addressed
- Many comments are about rigor of program design
- Involve scientists/managers as much as possible in ongoing project design
- Advertise that scientists/managers are involved

Conclusions/Recommendations

- Reach out to those who have invited further discussion
- Hold meetings/webinars of these stakeholders
- Compare rankings of appropriate topics with rankings from fishermen
- Preserve data for future evaluation/comparisons